MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL				
Strand 1: Number and Operations				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Number Sense	1	Compare and order real numbers including very large and small integers, and decimals and fractions close to zero.	1	Locate rational numbers on a number line.
	2	Classify real numbers as rational or irrational.	2	Identify irrational numbers.
			3	Classify real numbers as rational or irrational.
	3	Model the relationship between the subsets of the real number system.	M07-S1C1-08	Classify rational numbers as natural, whole, or integers.
	4	Model and solve problems involving absolute value.	1	Select the grade-level appropriate operation to solve word problems.
			2	Solve word problems using grade-level appropriate operations and numbers.
2. Numerical Operations	1	Solve problems with factors, multiples, divisibility or remainders, prime numbers, and composite numbers.	1	Select the grade-level appropriate operation to solve word problems.
			2	Solve word problems using grade-level appropriate operations and numbers.
	2	*Describe the effect of multiplying and dividing a rational number by • a number less than zero, • a number between zero and one, • one, and • a number greater than one.*		
	3	Solve problems involving percent increase, percent decrease, and simple interest rates.	9	Calculate the missing value in a percentage problem.
	4	Convert standard notation to scientific notation and vice versa (include positive and negative exponents).	10	Convert standard notation to scientific notation, and vice versa.

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

Strand 1: Number and Operations				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
2. Numerical Operations	5	Simplify numerical expressions using the order of operations that include grouping symbols, square roots, cube roots, absolute values, and positive exponents.	3	Determine the square of an integer.
			4	Determine the square root of an integer.
			5	Identify squaring and finding square roots as inverse operations.
			7	Apply the symbols "√" to represent square root, "±" to represent roots, and "{}" as grouping symbols.
			11	Simplify numerical expressions using the order of operations with grade appropriate operations on number sets.
	M08-S3C3-03	**Moved to Strand 3 Concept 3**	6	Apply grade-level appropriate properties to assist in computation.
		REMOVED (This skill is required throughout the standard.)	8	Use grade-level appropriate mathematical terminology.
3. Estimation	1	Make estimates appropriate to a given situation.	1	Solve grade-level appropriate problems using estimation.
			2	Use estimation to verify the reasonableness of a calculation (e.g., Is 32 the square root of 64?).
			3	Express answers to the appropriate place or degree of precision (e.g., time, money).
			4	Verify the reasonableness of estimates made from calculator results within a contextual situation.
	2	Estimate the location of rational and common irrational numbers on a number line.	M08-S1C1-01	Locate rational numbers on a number line.
			M08-S1C1-02	Identify irrational numbers.

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

Strand 2: Data Analysis, Probability, and Discrete Mathematics				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Data Analysis (Statistics)	1	Solve problems by selecting, constructing, interpreting, and calculating with displays of data, including box and whisker plots and scatterplots.	2	Construct box-and-whisker plots.
			4	Interpret box-and-whisker plots, circle graphs, and scatter plots.
			9	Solve contextual problems using scatter plots, box-and-whiskers plots, and double line graphs of continuous data.
			3	Determine the appropriate type of graphical display for a given data set.
			5	Answer questions based on box-and-whisker plots, circle graphs, and scatter plots.
			7	Formulate reasonable predictions based on a given set of data.
			11	Identify a line of best fit for a scatter plot.
	2	Make inferences by comparing the same summary statistic for two or more data sets.	6	Solve problems in contextual situations using the mean, median, mode, and range of a given data set.
			8	Compare trends in data related to the same investigation.
			11	Identify a line of best fit for a scatter plot.
	3	Describe how summary statistics relate to the shape of the distribution.	6	Solve problems in contextual situations using the mean, median, mode, and range of a given data set.
	4	Determine whether information is represented effectively and appropriately given a graph or a set of data by identifying sources of bias and compare and contrast the effectiveness of different representations of data.	3	Determine the appropriate type of graphical display for a given data set.
			MHS-S2C1-17	Identify differences between biased and unbiased samples.
	5	*Evaluate the design of an experiment.*		

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

Strand 2: Data Analysis, Probability, and Discrete Mathematics				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Data Analysis (Statistics)		**REMOVED**	1	Formulate questions to collect data in contextual situations.
		REMOVED	10	Evaluate the effects of missing or incorrect data on the results of an investigation (e.g., Susie's teacher recorded a 39 instead of a 93 for her last quiz, what will happen to Susie's average?).
	MCWR-S2C1-07	**Moved to College Work Readiness**	12	Distinguish between causation and correlation.
2. Probability	1	Determine theoretical and experimental conditional probabilities in compound probability experiments.	1	Determine the probability that a specific event will occur in a 2-stage probability experiment.
			3	Predict the outcome of a grade-level appropriate probability experiment.
	2	Interpret probabilities within a given context and compare the outcome of an experiment to predictions made prior to performing the experiment.	2	Solve contextual situations using probability (e.g., If the probability of Michelle making a free throw is 0.25, what is the probability that she will make three free throws in a row?).
			4	Record the data from performing a grade-level appropriate probability experiment.
			5	Compare the outcome of an experiment to predictions made prior to performing the experiment.
			7	Compare the results of two repetitions of the same grade-level appropriate probability experiment.
	3	Use all possible outcomes (sample space) to determine the probability of dependent and independent events.	6	Distinguish between independent and dependent events.

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

Strand 2: Data Analysis, Probability, and Discrete Mathematics				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
3. Systematic Listing and Counting	1	Represent, analyze, and solve counting problems with or without ordering and repetitions.	1	Determine all possible outcomes involving the combination of two or more sets of objects (e.g., If you roll a six-sided number cube 4 times, how many possible outcomes are possible?).
			2	Determine all possible arrangements given a set (e.g., How many ways can you arrange a set of 7 books on a shelf?).
	2	*Solve counting problems and represent counting principles algebraically including factorial notation.*		
4. Vertex-Edge Graphs	1	Use directed graphs to solve problems.	1	Solve contextual problems represented by vertex-edge graphs.

Strand 3: Patterns, Algebra, and Functions				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Patterns	1	Recognize, describe, create, and analyze numerical and geometric sequences using tables, graphs, words, or symbols; make conjectures about these sequences.	1	Communicate a grade-level appropriate iterative or recursive pattern, using symbols or numbers.
			2	Extend a grade-level appropriate iterative or recursive pattern.
			3	Solve grade-level appropriate iterative or recursive pattern problems.
2. Functions and Relationships	1	Sketch and interpret a graph that models a given context; describe a context that is modeled by a given graph.	1	Describe the rule used in a simple grade-level appropriate function (e.g., T-chart, input/output model).
			3	Determine whether a graph or table is related to a given equation of the form $y=ax^2$ where 'a' is a natural number.
			M08-S4C3-01	Use a table of values to graph a linear equation.

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

Strand 3: Patterns, Algebra, and Functions				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
2. Functions and Relationships	2	*Determine if a relationship represented by a graph or table is a function.*		
	3	Write the rule for a simple function using algebraic notation.	4	Identify independent and dependent variables for a contextual situation.
			M07-S3C2-01	Describe the rule used in a simple grade-level appropriate function (e.g., T-chart, input/output model).
	4	Identify functions as linear or nonlinear and contrast distinguishing properties of functions using equations, graphs, or tables.	2	Distinguish between linear and nonlinear functions, given graphic examples.
	5	*Demonstrate that proportional relationships are linear using equations, graphs, or tables.*		
3. Algebraic Representations	1	Write or identify algebraic expressions, equations, or inequalities that represent a situation.	2	Use variables in contextual situations.
			5	Translate a contextual situation into an algebraic inequality (e.g., Joe earns more than $5.00 an hour; therefore, $x > 5$).
			6	Identify an equation or inequality that represents a contextual situation.
	2	Evaluate an expression containing variables by substituting rational numbers for the variables.	1	Evaluate algebraic expressions by substituting rational values for variables [e.g., $2(ab+ac+bc)$, when $a = 2$, $b = 3/5$, and $c = 4$].

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

Strand 3: Patterns, Algebra, and Functions				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
3. Algebraic Representations	3	Analyze situations, simplify, and solve problems involving linear equations and inequalities using the properties of the real number system.	7	Solve one-step equations with rational numbers as coefficients or as solutions.
			8	Solve one-step equations that model contextual situations.
			9	Solve two-step equations with rational coefficients and integer solutions (e.g., $3x + 5 = 11$, $4x - 20 = 8$).
			M08-S1C2-06	Apply grade-level appropriate properties to assist in computation.
	4	Translate between different representations of linear equations using symbols, graphs, tables, or written descriptions.	3	Translate a written sentence or phrase into an algebraic equation or expression, and vice versa (e.g., Three less than twice a number is $2n$-3.).
			4	Translate a sentence written in context into an algebraic equation involving two operations.
	5	Graph an inequality on a number line.	10	Graph an inequality on a number line.
	M08-S4C4-02	**Moved to Strand 4 Concept 4**	11	Solve a simple algebraic proportion.
	M08-S4C3-02	**Moved to Strand 4 Concept 3**	12	Solve applied problems using the Pythagorean theorem.
4. Analysis of Change	1	Interpret the relationship between a linear equation and its graph, identifying and computing slope and intercepts.	1	Identify the slope of a line as the rate of change (the ratio of rise over run).
	2	Solve problems involving simple rates.	M08-S5C1-01	Describe how to use a proportion to solve a problem in context.

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

Strand 4: Geometry and Measurement				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Geometric Properties	1	Identify the attributes of circles: radius, diameter, chords, tangents, secants, inscribed angles, central angles, intercepted arcs, circumference, and area.	7	Recognize the relationship between inscribed angles and intercepted arcs.
			8	Identify tangents and secants of a circle.
	2	*Predict results of combining, subdividing, and changing shapes of plane figures and solids.*		
	3	Use proportional reasoning to determine congruence and similarity of triangles.	1	Draw a model that demonstrates basic geometric relationships such as parallelism, perpendicularity, similarity/proportionality, and congruence.
			10	Identify corresponding angles of similar polygons as congruent and sides as proportional.
			M08-S4C4-06	Solve problems using ratios and proportions, given the scale factor.
			M08-S4C4-07	Calculate the length of a side, given two similar triangles.
	4	*Use the Pythagorean Theorem to solve problems.*		
	M07-S4C1-03	**Moved to Grade 7**	1	Draw a model that demonstrates basic geometric relationships such as parallelism, perpendicularity, similarity/proportionality, and congruence.
	M07-S4C1-03	**Moved to Grade 7**	2	Draw 3-dimensional figures by applying properties of each (e.g., parallelism, perpendicularity, congruency).
	M04-S4C1-07	**Moved to Grade 4**	3	Recognize the 3-dimensional figure represented by a net.
	M07-S4C4-05	**Moved to Grade 7**	4	Represent the surface area of rectangular prisms and cylinders as the area of their net.

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

Strand 4: Geometry and Measurement				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Geometric Properties	M05-S4C1-01	**Moved to Grade 5**	5	Draw regular polygons with appropriate labels.
	M07-S4C1-02	**Moved to Grade 7**	6	Identify the properties of angles created by a transversal intersecting two parallel lines (e.g., corresponding angles are congruent).
	MHS-S4C1-09	**Moved to High School**	9	Determine whether three given lengths can form a triangle.
2. Transformation of Shapes	1	Model the result of rotations in multiples of 45 degrees of a 2-dimensional figure about the origin.	2	Model a simple transformation on a coordinate grid (e.g., Translate right four units and down two units.).
	2	Describe the transformations that create a given tessellation.	M05-S4C2-02	Describe the transformations that created a tessellation.
	3	*Identify lines of symmetry in plane figures or classify types of symmetries of 2-dimensional figures.*		
	M06-S4C2-01	**Moved to Grade 6**	1	Identify the planar geometric figure that is the result of a given rigid transformation.
3. Coordinate Geometry	1	Make and test a conjecture about how to find the midpoint between any two points in the coordinate plane.	2	Determine the midpoint given two points on a number line.
	2	Use the Pythagorean Theorem to find the distance between two points in the coordinate plane.	3	Determine the distance between two points on a number line.
			M08-S3C3-12	Solve applied problems using the Pythagorean theorem.
	M08-S3C2-01	**Moved to Strand 3 Concept 2**	1	Use a table of values to graph a linear equation.
4. Measurement	1	*Solve problems involving conversions within the same measurement system.*		

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

Strand 4: Geometry and Measurement				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
4. Measurement	2	Solve geometric problems using ratios and proportions.	6	Solve problems using ratios and proportions, given the scale factor.
			7	Calculate the length of a side, given two similar triangles.
			M08-S5C1-01	Describe how to use a proportion to solve a problem in context.
			M08-S3C3-11	Solve a simple algebraic proportion.
	3	Calculate the surface area and volume of rectangular prisms, right triangular prisms, and cylinders.	2	Solve problems involving the volume of rectangular prisms and cylinders.
			3	Calculate the surface area of rectangular prisms or cylinders.
			4	Identify rectangular prisms and cylinders having the same volume.
	M06-S4C4-05	**Moved to Grade 6**	1	Solve problems for the area of a trapezoid.
	MHS-S4C1-06	**Moved to Grade HS**	5	Find the measure of a missing interior angle in a triangle or quadrilateral.

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

Strand 5: Structure and Logic				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
1. Algorithms and Algorithmic Thinking	1	Create an algorithm to solve problems involving indirect measurements, using proportional reasoning, dimensional analysis, and the concepts of density and rate.	1	Describe how to use a proportion to solve a problem in context.
			M08-S4C4-06	Solve problems using ratios and proportions, given the scale factor.
	M06-S5C1-01	**Moved to Grade 6**	2	Analyze algorithms.
2. Logic, Reasoning, Problem Solving, and Proof	1	*Analyze a problem situation to determine the question(s) to be answered.*		
	2	*Analyze and compare mathematical strategies for efficient problem solving; select and use one or more strategies to solve a problem.*	M08-S1C2-01	Select the grade-level appropriate operation to solve word problems.
			M08-S1C2-02	Solve word problems using grade-level appropriate operations and numbers.
	3	*Identify relevant, missing, and extraneous information related to the solution to a problem.*		
	4	*Represent a problem situation using multiple representations, describe the process used to solve the problem, and verify the reasonableness of the solution.*	3	Model a contextual situation using a flow chart.
	5	*Apply a previously used problem-solving strategy in a new context.*		
	6	*Communicate the answer(s) to the question(s) in a problem using appropriate representations, including symbols and informal and formal mathematical language.*		

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.

MATHEMATICS CROSSWALK
2008 MATHEMATICS STANDARD TO 2003 MATHEMATICS STANDARD
GRADE 8

Strand 5: Structure and Logic				
CONCEPT	**2008 PO**	**ITEM DESCRIPTION**	**2003 PO**	**ITEM DESCRIPTION**
2. Logic, Reasoning, Problem Solving, and Proof	7	*Isolate and organize mathematical information taken from symbols, diagrams, and graphs to make inferences, draw conclusions, and justify reasoning.*		
	8	Describe when to use proportional reasoning to solve a problem.	M08-S5C1-01	Describe how to use a proportion to solve a problem in context.
	9	*Make and test conjectures based on information collected from explorations and experiments.*		
	10	Solve logic problems involving multiple variables, conditional statements, conjectures, and negation using words, charts, and pictures.	1	Solve a logic problem given the necessary information.
	11	Identify simple valid arguments using if… then statements.	2	Identify simple valid arguments using if…then statements (e.g., All squares are rectangles. If quadrilateral ABCD is a rectangle, is it a square?).
	12	*Make, validate, and justify conclusions and generalizations about linear relationships.*		
	13	Verify the Pythagorean Theorem using a valid argument.	4	Verify the Pythagorean theorem using an area dissection argument.

* This performance objective is new to the 2008 Mathematics Standard Articulated by Grade Level.